

1 CLAIMS

2 1. A game control device that conforms to Universal Serial Bus (USB)  
3 device class definitions for Human Interface Devices (HIDs), comprising:

4 a plurality of human-actuated controls;

5 one or more HID descriptors that describe aspects of the human-actuated  
6 controls, the HID descriptors associating HID string indexes with the respective  
7 human-actuated controls;

8 control mappings corresponding to a plurality of application program  
9 genres, the control mappings indicating actions to be performed in application  
10 programs of particular genres in response to respective ones of the human-actuated  
11 controls, wherein the control mappings identify controls by their HID string  
12 indexes.

13  
14 2. A game control device as recited in claim 1, the control mappings  
15 being indicated in data sets comprising:

16 a control section indicating the HID string indexes for the respective  
17 controls;

18 a genre section indicating actions to be performed in application programs  
19 of particular genres in response to respective ones of the human-actuated controls.

20  
21 3. A computer peripheral comprising:

22 a plurality of human-actuated controls;

23 non-volatile memory containing control mappings corresponding to a  
24 plurality of application program genres, the control mappings indicating actions to  
25

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1 be performed in application programs of particular genres in response to  
2 respective ones of the human-actuated controls.

3  
4 4. A computer peripheral as recited in claim 3, wherein the computer  
5 peripheral is a USB device and contains device class descriptions of the human-  
6 actuated controls in a format specified by the USB device class definition for  
7 human interface devices (HIDs), the control mappings containing references to  
8 HID identifiers for the respective human-actuated controls.

9  
10 5. A computer peripheral as recited in claim 3, wherein the computer  
11 peripheral is a USB device and contains descriptions of the human-actuated  
12 controls in a USB-specified format, the control mappings containing references to  
13 control identifiers contained in said descriptions.

14  
15 6. A computer peripheral as recited in claim 3, wherein the computer  
16 peripheral is a USB device and contains device class descriptions of the human-  
17 actuated controls in a format specified by the USB device class definition for  
18 human interface devices (HIDs), said device class definitions defining different  
19 HID string indexes for the respective human-actuated controls, the control  
20 mappings identifying controls by their different HID string indexes.

21  
22 7. A computer peripheral as recited in claim 3, the non-volatile memory  
23 containing a descriptor comprising:

24 a control section indicating string indexes for the respective controls;  
25

1 a genre section indicating the control mappings for the respective  
2 application program genres.

3  
4 8. A computer peripheral as recited in claim 3, the non-volatile memory  
5 containing a descriptor comprising:

6 a control section indicating string indexes for the respective controls, the  
7 string indexes corresponding to separately defined human device interface (HID)  
8 string indexes;

9 a genre section indicating the control mappings for the respective  
10 application program genres, the control mappings identifying controls by their  
11 HID string indexes.

12  
13 9. A computer peripheral as recited in claim 3, the non-volatile memory  
14 containing a descriptor comprising:

15 a header section indicating the number of controls on the computer  
16 peripheral and the number of genres for which control mappings exist in the non-  
17 volatile memory;

18 a control section indicating string indexes for the respective controls;

19 a genre section indicating the control mappings for the respective  
20 application program genres;

21 a diagram section containing one more graphics images of the computer  
22 peripheral, the one or more graphics images identifying locations of the human-  
23 actuated controls on the computer peripheral.

1           10. A computer peripheral as recited in claim 3, the non-volatile  
2 memory also containing control data that indicates:

3           string indexes for the respective controls;

4           graphics overlays that identify the human-actuated controls on the  
5 computer peripheral;

6           coordinates of the graphics overlays.

7  
8           11. A computer peripheral as recited in claim 3, the non-volatile  
9 memory also containing control data that indicates:

10          string indexes for the respective controls;

11          graphics overlays that identify the human-actuated controls on the  
12 computer peripheral;

13          coordinates of the graphics overlays;

14          coordinates for pointers to the human-actuated controls.

15  
16          12. A computer peripheral as recited in claim 3, the non-volatile  
17 memory containing a descriptor comprising:

18          a header section indicating the number of controls on the computer  
19 peripheral and the number of genres for which control mappings exist in the non-  
20 volatile memory;

21          a control section indicating string indexes for the respective controls, the  
22 control section also indicating graphics overlays that identify the human-actuated  
23 controls on the computer peripheral;

24          a genre section indicating the control mappings for the respective  
25 application program genres%.

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1  
2 13. A computer peripheral as recited in claim 3, the non-volatile  
3 memory further containing one more graphics images that identify the locations of  
4 the human-actuated controls on the computer peripheral.

5  
6 14. A method comprising:  
7 defining a plurality of application program genres;  
8 running an application program that has been classified as a particular  
9 application program genre, wherein the application program is responsive to a  
10 plurality of human-actuated controls on a control device;  
11 querying the control device to obtain a genre descriptor, the genre  
12 descriptor indicating actions to be performed by an application program of said  
13 particular application program genre in response to respective ones of the human-  
14 actuated controls.

15  
16 15. A method as recited in claim 14, wherein the obtained genre  
17 descriptor comprises:

18 a control section indicating string indexes for the respective controls;  
19 a genre section indicating the control mappings for the respective  
20 application program genres.

21  
22 16. A method as recited in claim 14, further comprising:  
23 retrieving one or more HID descriptors from the control device, the HID  
24 descriptors describing aspects of the human-actuated controls, the HID descriptors  
25 associating HID string indexes with the respective human-actuated controls;

004020-4167650

1 wherein the obtained genre descriptor identifies the human-actuated  
2 controls by their HID string indexes.

3  
4 17. A method as recited in claim 14, wherein the obtained genre  
5 descriptor comprises:

6 a control section indicating string indexes for the respective controls, the  
7 string indexes corresponding to separately defined human device interface (HID)  
8 string indexes;

9 a genre section indicating the control mappings for the respective  
10 application program genres, the control mappings identifying controls by their  
11 HID string indexes.

12  
13 18. A method as recited in claim 14, wherein the obtained genre  
14 descriptor comprises:

15 a header section indicating the number of controls on the control device and  
16 the number of genres for which control mappings exist in the genre descriptor;

17 a control section indicating string indexes for the respective controls;

18 a genre section indicating the control mappings for the respective  
19 application program genres;

20 a diagram section containing one more graphics images of the control  
21 device, the one or more graphics images identifying locations of the human-  
22 actuated controls on the control device.

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1        19. A method as recited in claim 14, wherein the obtained genre  
2 descriptor comprises:

3                string indexes for the respective controls;  
4                graphics overlays that identify the human-actuated controls on the control  
5 device;  
6                coordinates of the graphics overlays.

7  
8        20. A method as recited in claim 14, wherein the obtained genre  
9 descriptor comprises:

10               string indexes for the respective controls;  
11               graphics overlays that identify the human-actuated controls on the control  
12 device;  
13               coordinates of the graphics overlays;  
14               coordinates for pointers to the human-actuated controls.

15  
16        21. A method as recited in claim 14, wherein the obtained genre  
17 descriptor comprises:

18               a header section indicating the number of controls on the control device and  
19 the number of genres for which control mappings exist in the non-volatile  
20 memory;

21               a control section indicating string indexes for the respective controls, the  
22 control section also indicating graphics overlays that identify the human-actuated  
23 controls on the control device;

24               a genre section indicating the control mappings for the respective  
25 application program genres.

1  
2        22. A method as recited in claim 14, wherein the obtained genre  
3 descriptor comprises one more graphics images that identify the locations of the  
4 human-actuated controls on the control device.  
5

6  
7        23. A computer-readable storage medium containing system services  
8 utilized by an application program to interact with a control device having a  
9 plurality of human-actuated controls, wherein the system services perform acts  
10 comprising:  
11

12        receiving a request from an application program for a genre description  
13 corresponding to one of a plurality of application program genres;  
14

15        querying the control device to obtain a genre descriptor, the genre  
16 descriptor indicating actions to be performed by an application program of said  
17 one of a plurality of application program genres in response to respective ones of  
18 the human-actuated controls;  
19

20        returning the obtained genre descriptor to the requesting application  
21 program.  
22

23        24. A computer-readable storage medium as recited in claim 23,  
24 wherein the obtained genre descriptor comprises:  
25

26        a control section indicating string indexes for the respective controls;

27        a genre section indicating the control mappings for the respective  
28 application program genres.  
29



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1           25. A computer-readable storage medium as recited in claim 23, the  
2 systems services performs a further act comprising:

3           retrieving one or more HID descriptors from the control device, the HID  
4 descriptors describing aspects of the human-actuated controls, the HID descriptors  
5 associating HID string indexes with the respective human-actuated controls;

6           wherein the obtained genre descriptor identifies the human-actuated  
7 controls by their HID string indexes.

8  
9           26. A computer-readable storage medium as recited in claim 23,  
10 wherein the obtained genre descriptor comprises:

11           a control section indicating string indexes for the respective controls, the  
12 string indexes corresponding to separately defined human device interface (HID)  
13 string indexes;

14           a genre section indicating the control mappings for the respective  
15 application program genres, the control mappings identifying controls by their  
16 HID string indexes.

17  
18           27. A computer-readable storage medium as recited in claim 23,  
19 wherein the obtained genre descriptor comprises:

20           a header section indicating the number of controls on the control device and  
21 the number of genres for which control mappings exist in the genre descriptor;

22           a control section indicating string indexes for the respective controls;

23           a genre section indicating the control mappings for the respective  
24 application program genres;

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1 a diagram section containing one more graphics images of the control  
2 device, the one or more graphics images identifying locations of the human-  
3 actuated controls on the control device.

4  
5 **28.** A computer-readable storage medium as recited in claim 23,  
6 wherein the obtained genre descriptor comprises:

7 string indexes for the respective controls;

8 graphics overlays that identify the human-actuated controls on the control  
9 device;

10 coordinates of the graphics overlays.

11  
12 **29.** A computer-readable storage medium as recited in claim 23,  
13 wherein the obtained genre descriptor comprises:

14 string indexes for the respective controls;

15 graphics overlays that identify the human-actuated controls on the control  
16 device;

17 coordinates of the graphics overlays;

18 coordinates for pointers to the human-actuated controls.

19  
20 **30.** A computer-readable storage medium as recited in claim 23,  
21 wherein the obtained genre descriptor comprises:

22 a header section indicating the number of controls on the control device and  
23 the number of genres for which control mappings exist in the non-volatile  
24 memory;

1 a control section indicating string indexes for the respective controls, the  
2 control section also indicating graphics overlays that identify the human-actuated  
3 controls on the control device;

4 a genre section indicating the control mappings for the respective  
5 application program genres/.

6  
7 31. A computer-readable storage medium as recited in claim<sup>23</sup>, wherein<sup>A</sup>  
8 the obtained genre descriptor comprises one more graphics images that identify  
9 the locations of the human-actuated controls on the control device.

10  
11 32. A data transmission medium carrying a data structure comprising:  
12 a header section indicating the number of human-actuated controls on a  
13 computer peripheral and the number of application program genres for which  
14 control mappings exist in the data structure;  
15 a control section indicating HID string indexes for the respective controls  
16 on the computer peripheral;  
17 a genre section indicating control mappings for the respective application  
18 program genres.

19  
20 33. A data transmission medium as recited in claim 32, further  
21 comprising:

22 a diagram section containing one more graphics images of the computer  
23 peripheral, the one or more graphics images identifying locations of the human-  
24 actuated controls on the computer peripheral.  
25

1           34.    A data transmission medium as recited in claim 32, wherein the  
2 control section also indicates graphics overlays that identify the human-actuated  
3 controls on the computer peripheral.  
4

5           35.    A data transmission medium as recited in claim 32, further  
6 comprising a diagram section, the diagram section comprising graphics overlays  
7 that identify the human-actuated controls on the computer peripheral;

8                wherein the control section indicates coordinates of the graphics overlays  
9 and coordinates for pointers to the human-actuated controls.

10           ADDA2

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